**Physics Project: Waves: Sound and Light**

1. Brainstorm as a class
   1. Classify instruments into categories (how sound is made)
   2. Think of ways to make and modify sound that may not be used in a conventional instrument
   3. Consider all the instruments/technology that are made possible through the use of waves (light, mirrors, lenses, sound)
2. Choose one of the devices from the list and prepare a report which will explain what the device is, how it is constructed, how it works, what it is used for, and possible future applications of the technology used in this device.
3. Planning your musical instrument
   1. Make detailed notes on the construction. How does the device work?
   2. What materials/methods needed to be adapted?
   3. How will the parts fit together?
   4. Will you need glue or special tools to make your instrument?
4. You will also draw a diagram on poster paper and explain to the class, how your device works, particularly emphasizing the use of waves.
5. You will present your report to the class and explain your drawing
6. This will be an outline for your speaking notes: see rubric
7. Remember to use transitions to introduce each new category of information.

Along with

In addition

Also

Last

Another

Next

Besides

One

Finally

First

Second

Third

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| **Speaking notes** | **Make sure that you use the transition words** |
| How is the device constructed? | What vibrates to create sound waves |
| How do you play it? | What is the device used for? |
| Possible applications for the future |  |

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| **Musical Instrument Speech** | | **3 is the best score** | | | | | |
|  | **3** | **2** | | **1** | | **0** | |
| **Introduction** |  |  | |  | |  | |
| **How to play** |  |  | |  | |  | |
| **Makes sound** |  |  | |  | |  | |
| **Vibrates to create sound waves** |  |  | |  | |  | |
| **Pitch & volume** |  |  | |  | |  | |
| **Conclusion** |  |  | |  | |  | |
| **Total score** |  |  | |  | |  | |
| **POSTER** | | **3 is the best score** | | | | | |
|  | | **3** | **2** | | **1** | | **0** |
| **Draw a diagram of your proposed instrument** | |  |  | |  | |  |
| **Label the parts and list the materials you will use** | |  |  | |  | |  |
| **How will the instrument be played?** | |  |  | |  | |  |
| **What will vibrate to create sound waves?** | |  |  | |  | |  |
| **How will it produce different pitch and volume?** | |  |  | |  | |  |

**Comment:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Instrument Evaluation** | **5 is best score** | | | | |
|  | **5** | **4** | **3** | **2** | **1** |
| **Creates Sound Waves** |  |  |  |  |  |
| **Can change pitch** |  |  |  |  |  |
| **Can change volume** |  |  |  |  |  |
| **Creativity** |  |  |  |  |  |
| **Effort** |  |  |  |  |  |
| **Total score** |  |  |  |  |  |
| **Comment:** | | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Musical Instrument Paper** | | **3 is the best score** | | |
|  | **3** | **2** | **1** | **0** |
| **The biggest challenge in making my musical instrument was…** |  |  |  |  |
| **The most fun part of the musical instrument project was…** |  |  |  |  |
| **If I were going to make my instrument again, I would….** |  |  |  |  |
| **The part that worked the best on my musical instrument was the \_\_\_ because…** |  |  |  |  |
| **Next year I would make the students….** |  |  |  |  |
| **Conclusion/summarize info.** |  |  |  |  |
| **Total score** |  |  |  |  |
| **Comment:** | | | | |